

Remarks

Claims 12 - 32 are pending. Claims 23, 26, and 31 have been amended. Favorable reconsideration is respectfully solicited.

Claim 31 has been rejected under 35 U.S.C. § 112 for not defining the variable R⁴. Upon close review of the claims, Applicants discovered that claims 23 and 26 also suffer from this deficiency. All three claims have been amended to incorporate the definition of R⁴ from original claim 14. Withdrawal of the 35 U.S.C. § 112 rejection is thus respectfully solicited.

Claims 25 and 28 have been rejected under 35 U.S.C. § 112 ¶2 as indefinite for including the term "substantially" (substantially free of water). Applicants traverse this rejection, and respectfully request the Office to consider the legal precedents cited in their prior response, which are repeated below for the convenience of the Examiner.

The claims are addressed to one skilled in the art, who recognizes that a small amount of water which does not interfere with the storage and subsequent curing of the compositions is tolerable. The term "substantially" has been approved of in numerous instances. *See, e.g. Verve LLC. v. Crane Cams, Inc.*, 65 USPQ 2d 1051 (Fed. Cir. 2002). In the *Verve* case, the term "substantially constant wall thickness" had been held by the lower court to be indefinite under 35 U.S.C. § 112. The Federal Circuit reversed. As stated by the *Verve Court*:

Patent documents are written for persons familiar with the relevant field; the patentee is not required to include in the specification information readily understood by practitioners, lest every patent be required to be written as a comprehensive tutorial and treatise of the generalist, instead of a concise statement for persons in the field. Thus resolution of any ambiguity arising from the claims and specification may be aided by extrinsic evidence of usage and meaning of a term in the context of the invention. The question is not whether the word "substantially" has a fixed meaning as applied to "constant wall thickness," but how the phrase would be understood by persons

experienced in this field of mechanics, upon reading the patent documents.

Verve at 1053-54. The Court further stated:

Expressions such as “substantially” are used in patent documents when warranted by the nature of the invention, in order to accommodate the minor variations that may be appropriate to secure the invention. Such usage may well satisfy the charge to “particularly point out and distinctly claim” the invention, 35 U.S.C. § 112, and indeed may be necessary in order to provide the inventor with the benefit of his invention. In Andrew Corp. v. Gabriel Elecs. Inc., 847 F.2d 819, 821-22, 6 USPQ 2d 2010, 2013 (Fed. Cir. 1988) the court explained that usages such as “substantially equal” and “closely approximate” may serve to describe the invention with precision appropriate to the technology and without intruding on the prior art. The court again explained in Ecolab Inc. v. Envirochem, Inc., 264 F. 3d 1358, 1367, 60 USPQ 2d 1173, 1179 (Fed. Cir. 2001) that “like the term ‘about’, the term ‘substantially’ is a descriptive term commonly used in patent claims to ‘avoid a strict numerical boundary to the specified parameter,’ quoting Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1217, 36 USPQ 2d 1225, 1229 (Fed. Cir. 1995).

It is well established that when the term “substantially” serves reasonably to describe the subject matter so that its scope would be understood by persons in the field of the invention, and to distinguish the claimed subject matter from the prior art, it is not indefinite.

Verve at 1054.

Applicants also wish to direct their attention to MPEP § 2173.05(b), which indicates that relative terms are not of necessity indefinite, citing, for example, *In re Morosi*, 218 USPQ 289 (CCPA 1983) for the use of "essentially" and *In re Nehrenberg*, 126 USPQ 383 (CCPA 1960) (affirming definiteness of "substantially") and other cases cited. No cases supporting the indefiniteness of such terms are cited in the MPEP.

In the present case, the claimed prepolymers are very reactive with water; those of claims 18, 23, 26, 29, 30, 31 and their dependent claims being so reactive that immediate reaction occurs. The specification makes one skilled in the art aware of this, and the use of terms such as "substantially or essentially free of water" indicate to the skilled artisan that the water content is so low that any substantial amount of premature reaction is avoided. "Free of water" might lead one to assume that there is no water present at all, which, though ideal, is never obtainable. Even "anhydrous" solvents which have been scrupulously dried still contain measurable traces of water. The use of "substantially" in the context of the claims is the only way the claim scope can be accurately presented to one skilled in the art. Withdrawal of the rejection of the claims under 35 U.S.C. § 112 ¶2 is thus respectfully solicited.

Claims 12 - 22, 24 - 28, and 30 - 32 have been rejected under 35 U.S.C. § 102(b) over Müller et al. U.S. 5,118,290 ("*Müller*"). The Courts have many times indicated the requirement for anticipation is extremely high. *In Trintec Industries, Inc. v. TOP - U.S.A. Corp*, 63 USPQ 2d 1597 (Fed. Cir. 2002), the Court stated that this requirement is one of "strict identity", and because of this very strict identity requirement, indicated that cases of anticipation are "quite rare."

Müller does not disclose the mol ratio of low molecular weight diol (A2) to polyol (A1) recited in the claims, nor does *Müller* disclose the requirement that more than 80% of the chain termini are alkoxysilyl groups. Assuming arguendo that *Müller* discloses an overlapping diol/polyol molar ratio, he does not disclose the end points of Applicants' claimed range, nor does he have even a single example within the range. Factually, *Müller* does not have even a single example using a low molecular weight diol in any concentration.

Second, as indicated earlier, *Müller* is silent about the percentage of alkoxysilyl group termination.

The law is very clear that under these circumstances, a rejection under 35 U.S.C. § 102(b) cannot be maintained. Applicants recited the controlling law relative to such rejections in their last response, however the Office has still maintained the rejection. Applicants repeat

this argument below, and further note that the case involved, *Atofina*, is also cited in the MPEP for the same proposition: a reference such as *Müller* is not anticipatory.

In *Atofina v. Great Lakes Chemical Corp.*, 78 USPQ 2d 14 17 (Fed. Cir. 2006), gas phase fluorination of methylene chloride with HF was claimed. The claim at issue was a process claim which contained three distinct ranges: a temperature range of 330°C to 450°C; an oxygen to methylene chloride molar ratio of 0.1 to 5.0 percent; and a contact time of 0.01 to 10 seconds. With respect to the latter, the alleged anticipatory reference was silent, and the Federal Circuit had no hesitancy in indicating that there was no anticipation of that contact time range either literally or by inherency. The other two ranges were carefully reviewed by the Court and compared with the ranges in the reference. The Table below might be helpful in understanding the Court's holding.

Patent Claimed Range	JP Reference Disclosure		
	broadest	preferred	example
330 - 450°C	100 - 500°C	150 - 350°C	none within 330 - 450°
0.1 - 5.0 mol ratio O ₂ /CH ₂ Cl ₂	0.001 - 1	none	none within 0.1 - 5.0

Note that the claimed temperature range is completely within the references broad range of 100 - 500°C, and even overlaps the preferred range. The Court concluded that there was no anticipation, since neither endpoint of the claimed range was disclosed by the reference, and there was no actual example within the claimed range.¹ That is the case here.

The same was true for the O₂/CH₂Cl₂ mol ratio. The claimed range was not disclosed. While there was an overlap between the claimed range and the range disclosed by the reference, there were no identical endpoints, nor was any actual example within the claimed range. Thus, there was no anticipation.

¹ The Court acknowledges that an actual example (species) within the claimed range or an identical endpoint (also a species), would have anticipated.

For these reasons, the rejections of the claims over *Müller* under 35 U.S.C. § 102(b) is respectfully solicited.

Claims 12 - 32 have been rejected under 35 U.S.C. § 102(b) over Majolo WO 00/359891 ("Majolo"). As with *Müller*, neither the diol/polyol mol ratio nor the percentage alkoxy silyl terminal groups are disclosed or suggested by *Majolo*. For these reasons alone, the rejections under 35 U.S.C. § 102(b) must be withdrawn.

However, *Majolo* is even farther from the claimed invention, as Applicants' claims require the polymer and groups to be $-SiR_{\alpha}^1(OR^2)_{3-\alpha}$ groups where R^2 is an alkyl or oxyalkyl radical. Thus, for example, end groups within the claims include $-Si(CH_3)(OCH_3)_2$, $-Si(CH_3)_2OCH_3$, $-Si(OCH_3)_3$, $-Si(OCH_2OCH_3)_3$, etc. *Majolo* requires at least one of his OR groups to be an -OH group. The end groups of applicants are not such groups. The Office states that Applicants' claims do not preclude such groups, which is true. However, that is not the issue. The issue is whether *Majolo* discloses Applicants' required groups, where in all silicon-bonded OR groups, R is alkyl or oxaalkyl. *Majolo* does not do so. Withdrawal of the rejection under 35 USC § 102(b) is solicited for this reason as well.

Claims 23 and 29 have been rejected under 35 U.S.C. § 103(a) as obvious over *Müller* in view of *Majolo*.

Claim 23 requires at least one alkoxy silane of the formula $B^2 \wedge SiR_{\alpha}^1(OR^2)_{3-\alpha}$. These compounds are very active water scavengers. Applicants find no disclosure of any such water scavenger in either *Müller* or *Majolo*. Withdrawal of the rejection of claim 23 is thus solicited. If this rejection is maintained, Applicants respectfully request the Examiner to point to those portions of *Müller* or *Majolo* which disclose water scavengers having the recited formula.

Claim 29 requires that the alkoxy silane A4 of claim 12 be an isocyanato methyl alkoxy silane or a hydroxy-, thio- or amino-methyl alkoxy silane. *Majolo* discloses no isocyanato methyl alkoxy silanes, and the only B^1-A -alkoxysilyl compounds II

disclosed by *Majolo* have A being more than one carbon, i.e. no methylene groups are disclosed. The presence of the methylene group provides properties which are highly surprising and unexpected: reaction with water is so high that catalysts may be dispensed with, as explained on page 16 of the application. *Majolo* does not teach or suggest such a result.

Moreover, all of *Majolo's* compositions are curable aqueous dispersions of his prepolymers. The prepolymers of claim 29 are so reactive with water that curable aqueous dispersions cannot be prepared. Rather, the prepolymers would rapidly react with the continuous aqueous phase and thus will already be cured. The reason *Majolo* is able to prepare aqueous dispersions which can be deposited and dried to form a curable film is that his prepolymers all contain much less reactive alkoxysilane groups, linked to the polymer through a propylene group as opposed to the methylene group.

Finally, it is again noted that *Müller* and *Majolo* are not combinable. Applicants repeat their prior arguments in this regard, but note further that *Müller's* compositions cure in the presence of water while *Majolo's* are supplied as an aqueous dispersions. These are diametrically opposed teachings. There is no motivation to combine.

Applicants' respectfully solicit the entry of the claim amendments as the rejection of the claim under 35 U.S.C. § 112 were first set forth in the last Office Action, and clarification has been made as suggested by the Office. The claim amendments are also believed to be sufficient to place the claims in condition for allowance, or reduce issues on appeal, consistent with United States Patent and Trademark Office policy regarding compact prosecution.

Applicants submit that the claims are now in condition for Allowance, and respectfully request a Notice to that effect. If the Examiner believes that further discussion will advance the prosecution of the Application, the Examiner is highly encouraged to telephone Applicants' attorney at the number given below.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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